ABSTRACT

The invention provides in-mold decorated articles and methods to form the articles. The in-mold decorated articles include a polymeric portion having a substrate material adhered to a surface of the polymeric portion. The substrate material may be, for example, a film or a fabric. In some embodiments, the polymeric portion may be a foam and, particularly, a microcellular polymeric material. The articles are formed by injecting a mixture of blowing agent and polymeric material into a mold cavity in which the substrate material is disposed, so that the substrate material is forced against a wall of the mold cavity. The blowing agent, which in certain preferred cases is a supercritical fluid, decreases the viscosity of the polymeric material and, therefore, enables reductions in injection pressures and temperatures. Reduced injection temperature and pressure may widen the processing window, increase flexibility in the selection of substrate materials, and can eliminate the need for a barrier layer that is sometimes used in conventional processes. The method may be used to produce a variety of in-mold decorated articles.